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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,297	03/25/2004	Kiyoshi Chikamatsu	40020852-02	1500

7590

09/22/2005

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EXAMINER

WEST, JEFFREY R

ART UNIT

PAPER NUMBER

2857

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/809,297	Applicant(s) CHIKAMATSU, KIYOSHI	
	Examiner Jeffrey R. West	Art Unit 2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/25/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings in Figures 1 and 2 are objected to because they do not have sufficiently descriptive labels, specifically items "310" and "400". Blank boxes in drawings should be labeled descriptively unless it is a well-known component.
2. The drawings in Figures 3A, 3B, 7A, 7B, 9A, and 9B are objected to because they contains reference characters/numbers that are too small and/or blurred to be legible.
3. The drawing in Figure 7A is objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "860" and "870" have both been used to designate the same filter.
4. The drawing in Figure 7B is objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "865" and "875" have both been used to designate the same filter.
5. The drawing in Figures 4-6 are objected to because the titles and/or labels are not in English.
6. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in

reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The disclosure is objected to because of the following informalities:

On page 5, lines 8-9, "low-pass filter 500" should be ---low-pass filter 550---.

On page 5, line 16, reference character "540" is used to refer to a "filter" while Figure 1 illustrates that "540" is a local oscillator---.

On page 5, line 20, "mixer 540" should be ---mixer 530---.

On page 5, line 23, "mixer 540" should be ---mixer 530---.

On page 10, line 14, "Err" should be ---E_{rr}---

On page 11, line 7, "Switch 520" should be ---Switch 730---

On page 12, line 9, "low-pas filter 550" should be ---low-pas filter 830---

On page 12, line 10, "A/D converter 560" should be ---A/D converter 850---

Appropriate correction is required.

8. The specification is objected to because the formulas presented on pages 12, 13, 22, 23 and 24 contain reference characters/numbers that are too small and/or blurred to be legible.

Appropriate correction is required.

9. The specification is objected to because the tables presented on pages 17 and 21 contain entries that are not in English.

Appropriate correction is required.

Claim Objections

10. Claims 1-10 are objected to because of the following informalities:

In claim 1, lines 1-2, to avoid problems of antecedent basis, "the in-phase component and the quadrature-phase component" should be ---an in-phase component and a quadrature-phase component---

In claim 1, line 6, to avoid problems of antecedent basis, "wherein the output" should be ---wherein output---

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In claim 2, line 1, to avoid problems of antecedent basis, "the impulse" should be ---an impulse---.

In claim 2, line 2, to avoid problems of antecedent basis, "the sine" should be ---a sine---.

In claim 2, lines 2-3, to avoid confusion, "the same frequency as the pre-determined frequency" should be ---the frequency of the pre-determined frequency---

In claim 2, line 4, to avoid problems of antecedent basis, "the cosine" should be --a cosine---.

In claim 2, lines 4-5, to avoid confusion, "the same frequency as the pre-determined frequency" should be ---the frequency of the pre-determined frequency---

In claim 3, lines 1-2, to avoid problems of antecedent basis, "the in-phase component and the quadrature-phase component" should be ---an in-phase component and a quadrature-phase component---.

In claim 3, line 7, to avoid problems of antecedent basis, "the output signal" should be ---an output signal---.

In claim 3, line 9, to avoid problems of antecedent basis, "the output" should be --output---.

In claim 3, line 10, to avoid problems of antecedent basis, "the output" should be ---output---.

In claim 4, line 2, to avoid problems of antecedent basis, "the sine" should be ---a sine---.

In claim 4, lines 2-3, to avoid confusion, "the same frequency as said pre-determined frequency" should be ---the frequency of said pre-determined frequency---.

In claim 4, line 5, to avoid problems of antecedent basis, "the cosine" should be --a cosine---.

In claim 4, lines 5-6, to avoid confusion, "the same frequency of the same pre-determined frequency" should be ---the frequency of said pre-determined frequency---.

In claim 5, line 1, to avoid problems of antecedent basis, "the ratio" should be ---a ratio---.

In claim 6, line 5, to avoid problems of antecedent basis, "the output" should be --output---.

In claim 6, line 5, to avoid problems of antecedent basis, "the in-phase" should be ---an in-phase---.

In claim 6, line 6, to avoid problems of antecedent basis, "the output" should be --output---.

In claim 6, line 7, to avoid problems of antecedent basis, "the quadrature-phase" should be ---a quadrature-phase---.

In claim 7, line 2, to avoid problems of antecedent basis, "the sine" should be ---a sine---.

In claim 7, lines 2-3, to avoid confusion, "the same frequency as the pre-determined frequency" should be ---the frequency of the pre-determined frequency---

In claim 7, line 4, to avoid problems of antecedent basis, "the cosine" should be --a cosine---

In claim 7, lines 4-5, to avoid confusion, "the same frequency of the pre-determined frequency" should be ---the frequency of the pre-determined frequency---

In claim 8, lines 1-2, to avoid problems of antecedent basis, "the in-phase component and the quadrature-phase component" should be ---an in-phase component and a quadrature-phase component---

In claim 8, line 9, to avoid problems of antecedent basis, "wherein the output" should be ---wherein output---

In claim 8, line 10, to avoid problems of antecedent basis, "the output" should be ---output---

In claim 9, line 2, to avoid problems of antecedent basis, "the sine" should be ---a sine---

In claim 9, lines 2-3, to avoid confusion, "the same frequency as the pre-determined frequency" should be ---the frequency of the pre-determined frequency---

In claim 9, line 5, to avoid problems of antecedent basis, "the cosine" should be --a cosine---

In claim 9, lines 5-6, to avoid confusion, "the same frequency as the pre-determined frequency" should be ---the frequency of the pre-determined frequency---

In claim 10, lines 1-2, to avoid problems of antecedent basis, "the ratio" should be ---a ratio---

Appropriate correction is required.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 6 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 is considered to be vague and indefinite because line 6 makes reference to "said pre-determined frequency signals" while there is no previous mention of any "pre-determined frequency signals". Therefore, it is unclear to one having ordinary skill in the art as to what "said pre-determined frequency signals" refers.

Claim 6 is also considered to be vague and indefinite because lines 7-8 refer to "said pre-determined frequency signal". As noted above, there is previous mention of "said pre-determined frequency signals". This mention, however, does not specify any one particular "signal" but instead provides a plurality of "signals". Therefore, it

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is unclear to one having ordinary skill in the art as to what specific signal "said predetermined frequency signal" refers.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, because it incorporates the lack of clarity present in parent claim 6.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,808,463 to Nagano.

With respect to claims 1 and 3, Nagano discloses a vector-detecting apparatus that detects the in-phase component and the quadrature-phase component of a predetermined frequency signal, said apparatus comprising a frequency converter (column 5, lines 6-12), a first filter, and a second filter, wherein said first and second filters filter the output signal of said frequency converter and whose impulse responses are orthogonal to each other (column 5, lines 30-34), and wherein the output of said first filter is regarded as the in-phase component of said predetermined frequency signal, and the output of said second filter is regarded as the

quadrature-phase component of said pre-determined frequency signal (column 5, lines 34-38).

With respect to claims 2 and 4, Nagano discloses that the response of said first filter is weighted by the sine function of the same frequency as said pre-determined frequency signal after frequency conversion by said frequency converter, and the impulse response of said second filter is weighted by the cosine function of the same frequency of the same pre-determined frequency signal after frequency conversion by the frequency converter (column 5, lines 53-64).

With respect to claim 5, Nagano discloses that the ratio of the frequency of said pre-determined frequency signal before conversion by said frequency converter and the frequency after conversion by said frequency converter is an integer of 2 or higher (column 5, lines 22-29 and column 8, lines 17-32).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 6-10, as may best be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano in view of U.S. Patent No. 4,888,701 to Wakasugi et al.

As noted above, the invention of Nagano teaches all of the features of the claimed invention except for explicitly stating that the apparatus of Nagano is used as part of an impedance measuring apparatus.

Wakasugi teaches an apparatus for measuring a vector voltage ratio including a plurality of phase detectors connected to a plurality of A/D converters (column 3, lines 2-6) for detecting in-phase and quadrature-phase vectors (i.e. vectors with phase components 90 degrees from each other) (column 3, lines 29-37) for use in measuring impedance (column 4, lines 16-30).

It would have been obvious to one having ordinary skill in the art to modify the invention of Nagano to explicitly state that the apparatus of Nagano is used as part of an impedance measuring apparatus because the invention of Wakasugi suggests that impedance measuring apparatuses require accurate measurements of in-phase and quadrature-components (column 1, lines 6-25) and therefore the combination would have provided a wider variety of applications of the invention of Nagano by applying the in-phase and quadrature phase detection means to an impedance measuring apparatus.

Further, the limitation specifying the use of the apparatus of Nagano as part of an impedance measuring apparatus is considered to be a recitation of intended use. It has been held that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In this

case, since the structure of Nagano could be used in any of a plurality of apparatuses, including an impedance measuring apparatus, it meets the claim.

Further still, Applicant admits as Prior Art in the Background of the Invention that it is well-known in the art to use in-phase and quadrature detection in impedance measuring devices. Therefore, it would have been obvious to one having ordinary skill in the art to conform to what is common in the art by applying the method of Nagano to a conventional impedance measuring apparatus. *When applicant states that something is prior art, it is taken as being available as prior art against the claims. Admitted prior art can be used in obviousness rejections. In re Nomiya, 509 F.2d 566, 184 USPQ 607, 610 (CCPA 1975).*

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

U.S. Patent Application Publication No. 2004/0070766 to Szafraniec teaches a method and apparatus for a Jones Vector based heterodyne optical polarimeter including the use of two orthogonal filters to determined in-phase and quadrature components.

U.S. Patent No. 6,724,832 to Hershberger teaches a vestigial sideband generator including two low-pass filters for producing folded orthogonal base-band components of I (i.e. in-phase) and Q (i.e. quadrature).


U.S. Patent No. 6,704,324 to Holmquist teaches an apparatus and method for transmission of voice band signals over a DSL line including determining in-phase and quadrature components in accordance with orthogonal Hilbert pass-band filters.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. West whose telephone number is (571)272-2226. The examiner can normally be reached on Monday through Friday, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571)272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jrw
September 15, 2005


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